IN THE CLAIMS:

Claim 1 (Previously Presented). A purified and isolated polynucleotide, which comprises a DNA sequence coding for a protein GLUT4V85M.

Claim 2 (Currently Amended). The purified and isolated polynucleotide as claimed in claim 1, wherein said DNA sequence comprises the nucleotide sequence of SEQ ID NO:1~~which comprises a sequence from any of the following groups:~~

~~a) a nucleotide sequence according to Seq ID No. 1~~

~~b) a nucleotide sequence which hybridizes to a sequence of Seq ID No. 1 under stringent conditions and which codes for a protein GLUT4V85M~~.

Claim 3 (Currently Amended). The purified and isolated polynucleotide as claimed in claim ~~1 or~~ 2, wherein the protein GLUT4V85M comprises the ~~has an~~ amino acid sequence according to Seq ID No. 2.

Claim 4 (Currently Amended). The purified and isolated polynucleotide as claimed in claim 1 ~~claims 1 to 3~~, wherein the DNA sequence encoding for the ~~in which the coding region for the protein~~ GLUT4V85M protein is operationally linked to a promoter ~~promotor~~.

Claim 5 (Currently Amended). The purified and isolated polynucleotide as claimed in claim 1 ~~to 4~~, wherein said DNA sequence comprises a nucleotide sequence that hybridizes under stringent conditions to the nucleotide sequence of SEQ ID NO:1 ~~which can be replicated in a yeast cell~~.

Claim 6 (Currently Amended). An expression vector comprising the purified and isolated polynucleotide of claim 4 ~~The polynucleotide as claimed in claim 5, which can be used to express a protein in a yeast cell~~.

Claim 7 (Currently Amended). A yeast cell from *Saccharomyces cerevisiae*, wherein all glucose transporters are no longer functional and which contains no functional ~~Erg4~~ *Erg4* protein.

Claim 8 (Currently Amended). The ~~A~~ yeast cell of claim 7, lacking ~~from *Saccharomyces cerevisiae*, wherein all glucose transporters are no longer functional and which contains no~~ functional *Fgy1* protein ~~and no functional *Erg4* protein~~.

Claim 9 (Currently Amended). The yeast cell as claimed in claim 7 ~~or 8~~, wherein the *ERG4* gene is completely or partially deleted.

Claim 10 (Currently Amended). The yeast cells as claimed in claim 7, ~~as~~ deposited as *Saccharomyces cerevisiae* DSM 15187.

Claim 11 (Currently Amended). The yeast cells as claimed in claim 8 ~~or 9~~, ~~as~~ deposited as *Saccharomyces cerevisiae* DSM 15184.

Claim 12 (Currently amended). ~~The use of a yeast cell as claimed in claims 15 to 18 for expressing a mammalian GLUT1 protein or GLUT4 protein~~ A yeast cell from *Saccharomyces cerevisiae* in which all glucose transporters are no longer function, and which contains no functional *Erg4* protein, wherein said yeast cell is transformed with the expression vector of claim 4.

Claim 13 (Currently Amended). The transformed yeast cell of ~~use as claimed in~~ claim 12, deposited as DSM15185 ~~for expressing a human GLUT4 protein or a human GLUT1 protein~~.

Claim 14. (Currently Amended). The transformed yeast cell as claimed in claim 12 ~~7~~, further lacking functional *Fgy1* protein ~~comprising a polynucleotide as claimed in claims 1 to 6~~.

Claim 15 (Currently Amended). The transformed *Saccharomyces cerevisiae* yeast cell of claim 14, deposited as DSM15186 ~~The yeast cell as claimed in claim 14, comprising a protein GLUT4V85M~~.

Claim 16. (Currently Amended) The purified isolated polynucleotide of claim 2, wherein the DNA sequence that encodes the GLUT4V85M protein is operationally linked to a promoter ~~The yeast cell as claimed in claim 14 and/or 15, as deposited as *Saccharomyces cerevisiae* DSM 15185~~.

Claim 17 (Currently amended). A process of preparing a *Saccharomyces cerevisiae* yeast cell which (i) expresses a GLUT4V85M protein comprising the amino acid sequence of SEQ ID NO:2, (ii) does not contain a functional glucose transporter, and (iii) lacks functional *Erg4* protein, the process comprising the steps of ~~as claimed in claims 14 to 16, which comprises the steps~~:

a) providing a yeast cell from *Saccharomyces cerevisiae*, wherein all glucose transporters are no longer functional and which contains no functional Erg4 protein ~~yeast cell as claimed in claim 7~~,

b) providing ~~a~~ an expression vector that comprises the nucleotide sequence of SEQ ID NO:1 operationally linked with a promoter ~~polynucleotide as claimed in claim 5 or 6~~, and

~~c)~~ transforming the yeast cell of a) ~~as claimed in a)~~ with the expression vector of b) ~~polynucleotide as claimed in b),~~

~~d) selecting a transformed yeast cell,~~

e) ~~where appropriate, expressing a protein GLUT4V85M~~.

Claim 18. (Currently Amended). The isolated polynucleotide of Claim 5, wherein the DNA sequence that encodes the GLUT4V85M protein is operationally linked to a promoter ~~The yeast cell as claimed in claim 8 or 9, comprising a polynucleotide as claimed in claims 1 to 6~~.

Claim 19. (Currently Amended). An expression vector comprising the isolated polynucleotide of claim 16 ~~The yeast cells claimed in claim 18, comprising a protein GLUT4V85M~~.

Claim 20. (Currently Amended) An expression vector comprising the isolated polynucleotide of claim 18 ~~The yeast cell as claimed in claim 18 and/or 19, deposited as *Saccharomyces cerevisiae* DSM 15186~~.

Claim 21 (Currently amended). A process of preparing a *Saccharomyces cerevisiae* yeast cell which (i) expresses a GLUT4V85M protein comprising the amino acid sequence of SEQ ID NO:2, (ii) does not contain a functional glucose transporter, (iii) lacks functional *Erg4* protein, and (iv) lacks functional *Fgy1* protein, the process comprising ~~as claimed in claims 18 to 20, which comprises~~ the steps of:

a) providing a yeast cell from *Saccharomyces cerevisiae*, wherein all glucose transporters are no longer functional, which contains no functional Erg4 protein, and which contains no functional Fgy1 protein, and ~~yeast cell as claimed in claim 8 or 9~~,

b) providing ~~a~~ an expression vector that comprises the nucleotide sequence of SEQ ID NO:1 operationally linked with a promoter ~~polynucleotide as claimed in claim 5 or 6~~, and

~~c)~~ transforming the yeast cell of step (a) ~~as claimed in a)~~ with the expression vector of step (b) ~~polynucleotide as claimed in b),~~

~~d) selecting a transformed yeast cell;~~

e) ~~where appropriate, expressing a protein GLUT4V85M~~.

Claim 22 (Currently Amended). A *Saccharomyces cerevisiae* yeast cell whose glucose transporters in their entirety are no longer functional, transformed with the expression vector of claim 6 ~~comprising a polynucleotide as claimed in claims 1 to 6~~.

Claim 23 (Currently amended). The yeast cell as claimed in claim 22, wherein said DNA sequence of said expression vector comprises the nucleotide sequence of SEQ ID NO:1, and said ~~comprising a protein~~ GLUT4V85M protein comprises the amino acid sequence of SEQ ID NO:2.

Claim 24 (Currently amended). The yeast cell as claimed in claim 23 ~~claim(s) 22 and/or 23~~, deposited as *Saccharomyces cerevisiae* DSM 15188.

Claim 25 (Currently amended). A process of preparing the *Saccharomyces cerevisiae* ~~a~~ yeast cell as claimed in claim 22 ~~claims 22 to 24~~, which comprises the steps:

a) producing a *Saccharomyces cerevisiae* yeast cell whose glucose transporters in their entirety are no longer functional,

b) providing an expression vector that comprises a purified and isolated polynucleotide comprising a DNA sequence that encodes a GLUT4V85M protein ~~a polynucleotide as claimed in claim 5 or 6,~~

c) transforming the yeast cell of step (a) ~~as claimed in a)~~ with the expression vector of step (b) ~~polynucleotide as claimed in b)~~

~~b)selecting a transformed yeast cell,~~

~~c)where appropriate, expressing a protein GLUT4V84M~~.

Claim 26 (Currently amended). An isolated polynucleotide that encodes a polypeptide comprising the amino acid sequence of SEQ ID NO:2 ~~having the functional activity of a glucose transporter, which is encoded by a polynucleotide sequence as claimed in any of claims 1 to 3~~.

Claim 27 (Currently amended). The isolated polynucleotide of claim 26, comprising the DNA sequence of SEQ ID NO:1 ~~protein as claimed in claim 13, comprising an amino acid sequence according to Seq. ID No. 2~~.

Claim 28 (Currently amended). A method for identifying a chemical compound which stimulates the activity of a GLUT4 protein, which comprises the steps:

a) providing a *Saccharomyces cerevisiae* yeast cell which (i) expresses a GLUT4V85M protein comprising the amino acid sequence of SEQ ID NO:2, (ii) does not contain a functional glucose transporter, and (iii) lacks functional *Erg4* protein ~~yeast cell as claimed in one or more of claims 14 to 17~~,

b) providing the ~~a~~ chemical compound,

c) contacting the yeast cell of step (a) ~~of a)~~ with the chemical compound of step b),

d)determining glucose uptake by the yeast cell of c),

e) comparing ~~relating~~ the detected value of the glucose uptake of d) to the detected value of glucose uptake in a yeast cell of step (a) that was ~~as claimed in a) which is~~ not contacted with the ~~a~~ chemical compound as claimed in b),

wherein a finding that the detected value of the glucose uptake for the yeast cell that was contacted with the chemical compound is greater than the detected value of the glucose

uptake for the yeast cell that was not contacted with the chemical compound indicates that the chemical ~~with a~~ compound ~~which~~ causes an increase in the amount of glucose taken up in the yeast cell and stimulates ~~as claimed in d) stimulating~~ the activity of said GLUT4 protein.

Claim 29 (Currently amended). A pharmaceutical composition comprising a compound that stimulates the activity of a GLUT4 protein, ~~which is identified by means of a method as claimed in claim 28,~~ and additives and excipients ~~for formulating a pharmaceutical~~.

Claim 30 (Currently amended). A method for treating type I diabetes, type II diabetes, or a combination of type I and type II diabetes in a subject, comprising administering to the subject the pharmaceutical composition of claim 29 ~~The use of a compound which has been identified by means of a method as claimed in claim 28 for preparing a pharmaceutical for the treatment of type I and/or II diabetes~~.

Claim 31. (Currently Amended). A method for identifying a compound that inhibits ~~inhibiting~~ the protein encoded by ~~corresponding protein of~~ the *FGY1* ~~Fgy1~~ gene, which comprises the steps:

a) providing a yeast cell from *Saccharomyces cerevisiae*, wherein all glucose transporters are no longer functional and which contains no functional *Erg4* protein, ~~as claimed in one or more of claims 7 to 10~~ which contains a GLUT 4 protein,

b) providing a chemical compound

c) contacting the yeast cell of a) with the chemical compound of b),

d) determining glucose uptake by the yeast of c),

e) ~~relating~~ comparing the detected value of the glucose uptake of d) with ~~to~~ the detected value of glucose uptake in a yeast cell as claimed in a) which is not contacted with a chemical compound as claimed in b),

wherein a finding that the detected value of the glucose uptake for the yeast cell that was contacted with the chemical compound is greater than the detected value of the glucose uptake for the yeast cell that was not contacted with the chemical compound indicates that the chemical ~~with a~~ compound ~~which~~ causes an increase in the amount of glucose taken up in the yeast as claimed in d), and inhibits ~~stimulating~~ the activity of a protein Fgy1.

Claim 32. (Currently Amended). A pharmaceutical composition comprising a compound which inhibits the protein of the Fgy1 gene ~~has been identified by means of a method as claimed in claim 31~~, and additives and excipients ~~for formulating a pharmaceutical~~.

Claim 33. (Currently Amended). A method for identifying a compound that inhibits the protein encoded by the Fgy1 gene, which comprises the steps:

a) providing a yeast cell from *Saccharomyces cerevisiae*, wherein all glucose transporters are no longer functional and which contains no functional Erg4 protein, which contains a GLUT 4 protein,

b) providing a chemical compound

c) contacting the yeast cell of a) with the chemical compound of b),

d) determining glucose uptake by the yeast of c),

e) comparing the detected value of the glucose uptake of d) with the detected value of glucose uptake in a yeast cell as claimed in a) which is not contacted with a chemical compound as claimed in b),

wherein a finding that the detected value of the glucose uptake for the yeast cell that was contacted with the chemical compound is greater than the detected value of the glucose uptake for the yeast cell that was not contacted with the chemical compound indicates that the chemical compound causes an increase in the amount of glucose taken up in the yeast as claimed in d), and stimulates the activity of a protein Fgy1 ~~The use of a compound which has been identified by means of a method as claimed in claim 31 for preparing a pharmaceutical for the treatment of diabetes.~~

Claim 34. (Currently Amended) A method for identifying a compound which inhibits the protein encoded by the ERG4 gene, which method comprises the steps:

a) providing a *Saccharomyces cerevisiae* yeast cell whose glucose transporters in their entirety are no longer functional, and which comprises the nucleotide sequence of SEQ ID NO:1 operationally linked to a promoter ~~yeast cell as claimed in one or more of claims 22 to 25~~,

b) providing a chemical compound

c) contacting the yeast of a) with the chemical compound of b),

d) determining glucose uptake by the yeast of c),

e) comparing ~~relating~~ the detected value of the glucose uptake of d) to the detected value of glucose uptake in a yeast cell as claimed in a) which is not contacted with a chemical compound as claimed in b),

wherein a finding that the detected value of the glucose uptake for the yeast cell that was contacted with the chemical compound is greater than the detected value of the glucose uptake for the yeast cell that was not contacted with the chemical compound indicates that the chemical compound ~~with a compound which~~ causes an increase in the amount of glucose taken up in the yeast as claimed in d), and inhibits ~~inhibiting~~ the activity of a protein Erg4.

Claim 35 (Currently Amended). A pharmaceutical composition comprising a compound which causes an increase in the amount of glucose taken up by a cell and inhibits the activity of an Erg4 protein, ~~has been identified by means of a method as claimed in claim 34,~~ and additives and excipients for formulating a pharmaceutical.

Claim 36. (Currently Amended). A method for identifying a compound that inhibits the protein encoded by the Fgy1 gene, which comprises the steps:

a) providing a yeast cell from *Saccharomyces cerevisiae*, wherein all glucose transporters are no longer functional and which contains no functional Erg4 protein and no functional Fgy4 protein, and which contains a GLUT 4 protein,

b) providing a chemical compound

c) contacting the yeast cell of a) with the chemical compound of b),

d) determining glucose uptake by the yeast of c),

e) comparing the detected value of the glucose uptake of d) with the detected value of glucose uptake in a yeast cell as claimed in a) which is not contacted with a chemical compound as claimed in b),

wherein a finding that the detected value of the glucose uptake for the yeast cell that was contacted with the chemical compound is greater than the detected value of the glucose uptake for the yeast cell that was not contacted with the chemical compound indicates that the chemical compound causes an increase in the amount of glucose taken up in the yeast as claimed in d), and

stimulates the activity of a protein Fgy1 ~~The use of a compound which has been identified by means of a method as claimed in claim 34 for preparing a pharmaceutical for the treatment of diabetes~~.

Claim 37 (New). An expression vector comprising the isolated polynucleotide of claim 3.

Claim 38 (New). A *Saccharomyces cerevisiae* yeast cell whose glucose transporters in their entirety are no longer functional, transformed with the expression vector of claim 37.

Claim 39. (New) The transformed yeast cell of claim 39, which lacks functional *Erg4* protein.

Claim 40. (New). The transformed yeast cell of Claim 39, which lacks functional *Fgy4* protein.

Claim 41. (New). The yeast cell as claimed in claim 8, wherein the *ERG4* gene is completely or partially deleted.

Claim 42 (New). The yeast cell as claimed in claim 9, deposited as *Saccharomyces cerevisiae* DSM 15184.

Claim 43 (New). The transformed *Saccharomyces cerevisiae* yeast cell of claim 12, deposited as *Saccharomyces cerevisiae* DSM 15185.

Claim 44. (New) The transformed *Saccharomyces cerevisiae* yeast cell of Claim 40, as deposited as *Saccharomyces cerevisiae* DSM 15186.